

*Varsity Hackathon 2025*

# DEN-ALGO

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# CHOSEN CASE STUDY & REASON (S)

The ability to develop an AI-driven system that detects profitable trading signals is both an intellectual challenge and a valuable real-world application.

By developing a self-learning trading model, I aim to contribute to the future of AI-assisted trading while refining my skills in data analysis, model optimization, and financial forecasting.



# Proposed Solution

The solution is an AI-powered trading model that analyzes market trends and generates buy/sell signals based on machine learning algorithms.

Process real-time and historical data

Identify implicit market patterns with HMM and LSTM

Generate actionable trading signals ( $\geq 3\%$  frequency per data row).

Optimize risk-adjusted returns using Sharpe Ratio ( $\geq 1.8$ ) and max drawdown control.

Provide a user-friendly dashboard with real-time analytics and alerts.

# Suitable Technologies

## Frontend (Dashboard & Visualization)

- React.js (for UI components & interactive charts)
- TradingView API (for live market data visualization)

## Backtesting & Performance Evaluation

- Backtesting.py (for historical performance simulation)
- Matplotlib, Plotly (for data visualization)

## Backend (Data Processing & Model Execution)

- Python (Flask/FastAPI) (for backend logic & API endpoints)
- NumPy, Pandas (for data processing & feature engineering)
- TensorFlow/PyTorch (for training the LSTM/CNN model)

## Market Data & Trading API

- CryptoQuant, Glassnode, Coinglass (for historical & on-chain data)
- Binance API (for real-time crypto trading data)

# Business Model

Subscription-based SaaS

Freemium Model

API-as-Service

Institutional Licensing

# MARKET SEGMENT

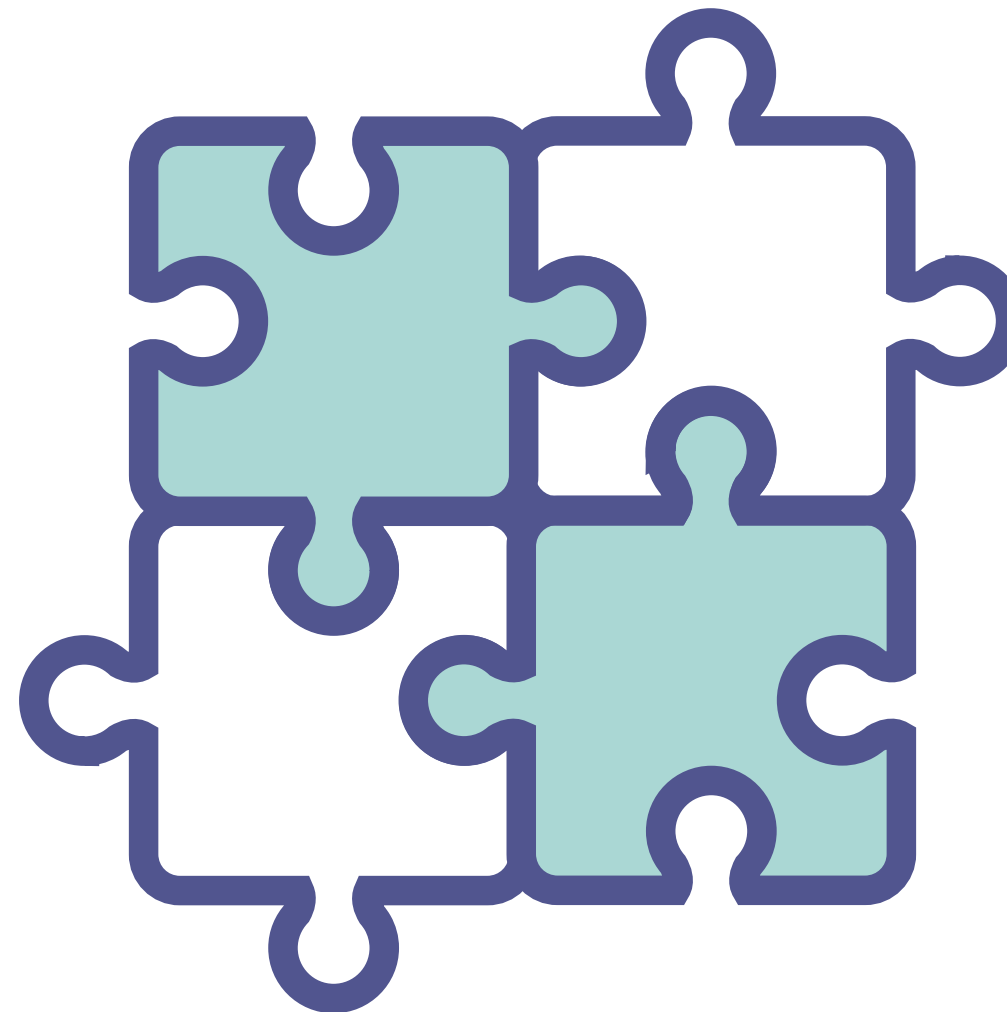
the primary target includes:

## Retail Traders

Individuals trading crypto/forex who need AI-driven insights.

## Institutional Investors

Hedge funds, trading firms, and investment banks interested in automated trading strategies.



## Algorithmic Traders

Developers and quants looking for pre-trained AI models.

## Financial Analyst

Professionals seeking AI-powered decision support.

# Competitor Analysis

## Competitor Strengths Weaknesses

- **TradingView** Advanced charting & indicators; No AI-based predictive analytics
- **3Commas** Automated bot trading; Limited ML-based strategy tools
- **CryptoHopper** Cloud-based AI trading bots; Requires manual tuning for optimization
- **QuantConnect** Algo trading platform w/ ML; Steep learning curve for non-programmers

## Our Competitive Edge:

- True self-learning AI models (HMMs, CNNs, LSTMs) vs. static bots.
- Real-time AI trading insights tailored to intraday traders.
- More accessible dashboard for non-technical users.

# **Room for improvements & Potential Expansion**



# THANK YOU

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